

## The influence of individual personality differences in language comprehension

Isabell Hubert & Juhani Järvikivi (University of Alberta)

Isabell.hubert@ualberta.ca

The field of linguistics has not traditionally focused on *hot cognition*, involving aspects like affective valence or emotions. Instead, the focus has been on averaging over individual differences and extra-linguistic information to make inferences about a population. In line with an emerging trend, this present study investigates whether a listener's personality traits or political beliefs, instead of being treated as “noise” [11], systematically influence automated language comprehension processes, and whether extra-linguistic information can be used in anticipatory processes [cf. 12].

Prior research suggests that an individual's personality influences their language use [7] and off-line processing of errors [2]. ERP research additionally suggests that mood [10] and both the listener's [9] and the speaker's perceived identity [8] systematically influence neural responses to violations. It was also found that high empathizers responded more strongly to socially contradictory information [11], presumably because they engage in more stereotype-based prediction, and are hence more surprised at clashing items.

We employed a self-paced listening paradigm to analyze response times (RT's) to three different kinds of violations in Western-Canadian speech: Morpho-syntactic ("I constantly **wears my watch** [critical segment], **even** [post-critical segment] **at night** [last segment]"), semantic/pragmatic ("Cats frequently **hunt bricks around their homes**"), and identity clashing ("I always **enjoy knitting in my free time**", spoken by a male) while assessing the participants' personality via the standardized *Big Five* [5,6], *Interpersonal Reactivity Index* [3], and *Empathy Quotient* [1] tests.

Results from linear mixed effects modelling (with  $t \geq |2|$  and  $p \leq .05$  for all effects reported here) indicate that individuals scoring highly on the *Openness* scale generally responded faster to trials, and individuals scoring highly on the *Personal Distress* scale responded more slowly.

In the morpho-syntactic type, RT's were influenced by the error condition in the critical segment, and by a number of personality scores in the critical and post-critical segments (faster RT's the higher the *Extroversion*, *Conscientiousness*, *Openness*, *Perspective-Taking*, and *EQ* scores; slower RT's the higher the *Distress* and *Neuroticism* scores).

While the erroneous condition caused a significant delay in the last segment of the semantic type, participants scoring highly on the *Conscientiousness*, *Openness*, *Extroversion*, *EQ*, and *Perspective-Taking* scales responded to semantic errors faster than baseline. This highlights the influence of personality on language processing, and hints at participants with traits commonly related to openness, outgoingness, and empathy remaining practically unaffected by semantic errors. Conversely, and as expected, scoring highly on the *Personal Distress* scale compounded the delay in the erroneous condition, suggesting that individuals experiencing distress easily have a harder time coping with semantically erroneous utterances.

An interaction was observed between the speaker's gender and the clashing condition in the last segment of the identity type: For high-strength clashes, participants responded significantly more slowly when the clash was produced by a male as compared to a female, suggesting that the speaker's perceived identity also plays an important role in meaning-making.

While the direction of some personality effects conflicts with some prior research [8,9,10,11], these results still suggest that both a listener's personality and a speaker's perceived identity have an influence on automated language comprehension processes, and that these non-linguistic aspects may affect the anticipation of upcoming information [cf. 4,12].

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